STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
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August 11, 2009

STATE PROJECT NOS. 065-91-0016 and 855-14-0015
FEDERAL AID PROJECT NOS. 5501(500) and 5501(502)
BAYOU TERREBONNE BRIDGE AND APPROACHES
ROUTE LA 24 and LA 3087
TERREBONNE PARISH

SUBJECT: ADDENDUM NO. 2 (CONSTRUCTION PROPOSAL REVISION)
ELECTRONIC BIDDING AMENDMENT NO. 1

Gentlemen:

The following proposal revisions dated 08/11/09 on the captioned project for which bids will be received on Wednesday, August 26, 2009 have been posted on http://www.dotd.la.gov/cgi-bin/construction.asp.

1. Added the special provisions entitled **NS WIRELESS ETHERNET RADIO** and **NS ETHERNET SWITCH MANAGED** (5 pages).
2. Revised the Schedule of Items as follows: (4 pages)
   a. Revised the quantities for items 805-01-00900 and 806-01-00100.
   b. Revised the supplemental description for item 807-08-00100.
   c. Added items NS-736-00002 and NS-736-00003.

Please note these revisions in the proposal and bid accordingly. Mandatory electronic bidding is required for this project, and electronic bids and electronic bid bonds must be submitted via www.bidx.com for this letting date.

Sincerely,

Randal D. Sanders

RANDAL D. SANDERS, P. E.
CONTRACTS & SPECIFICATIONS ENGINEER

Attachments
ec: Mr. Brian Buckel
Mr. Michael Stack
Mr. Christopher Rogers
Mr. Timothy Nickels
Mr. Eric Burges
Mr. Masood Rasoulian

NS WIRELESS ETHERNET RADIO (06/09):

DESCRIPTION. The contractor shall install a wireless Ethernet radio in accordance with the plans and this specification.

MATERIALS.

1. The wireless Ethernet radio system shall meet the following specifications:
   a. 5.150–5.825 GHz radios supplied shall meet FCC part 15 rules and IC RS210.
   b. 5.150–5.825 GHz radio shall provide data rates of 108Mbps along with the highest industry-established security features available. The radio shall be compatible with high bandwidth, long range industrial application, such as Intuicom Model EB-58 Broadband radio, or as approved equal.
   c. Radios shall be compatible to OFDM-based technology and 802.11a standard protocol. The radios shall also have security equal to WEP Encryption, WPA, WPA2, (including AES CCMP, TKIP), and MAC/RADIUS Authentication.
   d. Adaptive modulation – RF link is monitored to automatically adjust the data rate to optimize the maximum link performance.
   e. Radios shall support these Networking Features: Spanning Tree Protocol, DHCP, NTP, SNMP, VLAN, Routing, QOS (802.11e/WMM), and Multicasting.
   f. Radios shall provide embedded web-based configuration and diagnostic menus and a complete software toolset to assist in design, configure, monitor and optimize th e wireless network.
   g. Radios shall be manufactured in the United States of America with 100percent performance testing over operating temperatures of -40 °C to +85 °C (-40 °F to +185 °F).
   h. Radios shall be powered by POE (Powered over Ethernet) Injector with surge protection. This shall include 160 ft of Cat.5 or better Industrial Outdoor rated cable.
   i. Limited warranty period for defects in materials or workmanship under normal use and service for a period of two (2) years from the date of delivery.
   j. Radio:
      5.150–5.825 GHz License Free (U-NII) Bands:
      Low - 5.15 to 5.25 GHz at 17dBm, 4-channels
      Middle - 5.25 to 5.35 GHz at 24dBm, 4-channels
      High - 5.72 to 5.82 GHz at 26dBm, 5-channels

Data Rate Channels:
   Full: 20 MHz
   Half: 10 MHz
   Quarter: 5 MHz
   Typical Range: 20 miles (LOS)

Operating Modes:
   Point to Point
   Point to Multipoint
   WDS (MESH)

Modulation Schemes:
   Orthogonal Frequency-Division Multiplexing (OFDM)
   Adaptive modulation – RF link is monitored to automatically adjust the data rate to optimize the maximum link performance.

Available Configurations:
Access Point
Station
WDS (MESH)
Operating Temperature:
-40°C to +85°C
Input Voltage:
Power over Ethernet (POE) Injector:
100 to 240VAC with surge protection
Enables both Power and Data to be carried over Ethernet cable

k. Transmitter/Receiver
RF Output Power:
26dBm (programmable)
Receiver Sensitivity:
6Mbps = -94dBm
9Mbps = -93dBm
12Mbps = -91dBm
18Mbps = -90dBm
24Mbps = -86dBm
36Mbps = -83dBm
48Mbps = -77dBm
54Mbps = -74dBm

l. Data Rate
6 Mbps to 108 Mbps

m. Physical Interface
Data Interface:
Ethernet:
10/100BaseT, RJ45
160ft of Cat.5 / Industrial Outdoor rated cable included
Antenna Interface:
Integrated Enclosure Solution, 23dBi
IP67 Weatherproof Rating
Pole Mount, External Antenna Port N(F)Panel, Sector, Omni

n. Configuration & Management:
Configuration:
HTTP
SNMP
IP Auto-Discover
Management
Antenna Alignment Tool
Real Time Link Monitoring
RSSI
Noise Levels
LAN Statistics
WLAN Statistics/Errors
Uptime

2. Each Integrated package includes the following:
   1 - 23dBi Panel Antenna with Integrated Radio
   1 - 150ft of CAT5 Outdoor rated Ethernet Cable (connects integrated radio to POE)
   1 - Power-Over-Ethernet Injector; w/ surge protection

CONSTRUCTION REQUIREMENTS.

The contractor shall install the wireless Ethernet radio at the location shown on the plans and according to the manufacturer's recommendations. The contractor shall be responsible for the wireless Ethernet radio to be a fully functioning interconnect between signal intersections shown in the plans. The contractor shall provide the Panel Antenna with Integrated Radio, CAT5 Outdoor rated Ethernet Cable (connects integrated radio to POE), Power-Over-Ethernet Injector; with surge protection, any necessary mounting hardware, miscellaneous hardware, installation, and testing.

This specification sets forth the minimum requirements for a wireless system that transmits traffic signal controller data and video between traffic signal intersections. The data and video shall be made available to a large variety of end user applications. The inputs/outputs shall be able to connect to a Ethernet switch, traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector rack or 170 input file rack standards.

The system architecture shall fully support Ethernet networking of system components through a variety of industry standard and commercially available infrastructures that are used in the traffic industry. The data communications shall support direct connect, [modem,] and multi-drop interconnects. Simple, standard Ethernet wiring shall be supported to minimize overall system cost and improve reliability, utilizing existing infrastructure and ease of system installation and maintenance. Both streaming video and data communications shall, if specified in the plans, be interconnected over long distances through fiber optic, microwave, wireless Ethernet radio or other commonly used digital communications transport configurations.

MEASUREMENT.

Wireless Ethernet Radio, will be measured per each, which includes all materials, tools, equipment, labor, and incidentals required to install each fully functioning wireless Ethernet radio.

PAYMENT.

Payment for Wireless Ethernet Radio will be made at the contract unit price per each.

Payment will be made under:

Item No.	Pay Item	Pay Unit
NS-736-00002	Wireless Ethernet Radio	Each

NS ETHERNET SWITCH MANAGED (06/09):

DESCRIPTION. Contractor shall install an Ethernet switch in the signal controller cabinet for Ethernet peripheral devices in accordance with the plans, the 2006 Louisiana Standard Specifications for Roads and Bridges, and this specification.

MATERIALS.

1. The managed Ethernet switch for wireless applications shall be consistent with IEEE 802.3 standards. The managed Ethernet switch shall be capable of 10/100, Full/Half Duplex auto-negotiation, include a minimum of six Ethernet 10/100 RJ45 ports, l include MAC address storage capability, and include "Store-and-Forward" switching capability.
2. The managed Ethernet switch configuration shall include the ability to restrict bandwidth usage on attached devices by way of MAC address or by way of IP address.
3. The managed Ethernet switch shall be accessible from anywhere on the common Network by way of Telnet, HTTP, or SNMP.
4. The managed Ethernet Switch shall have a minimum extended temperature range of -40°C to +85°C (-40 °F to +180 °F) and a humidity range of 10 percent to 90 percent non-condensing. The managed Ethernet switch shall include, at a minimum, a LED for power and a LED for 10/100 connection status (for each port).
5. All copper ports shall be type RJ-45 and shall auto-negotiate for speed (i.e., 10/100Base), duplex (i.e., full or half) and polarity. All 10/100BaseTX ports shall meet the Category 5 specifications and shall be compliant with the EIA/TIA-568-A standard pinouts.
6. The switch shall have the ability to support the Layer 2+ management features commonly found in managed non-environmental Ethernet switches. These features shall include, but not be limited to:

   a. The STP healing rate shall meet or exceed specifications published in the 802.1D standard;

   b. The RSTP healing rate shall meet or exceed specifications published in the IEEE 802.1W standard;

   c. The switch shall support port-based VLANs that meet or exceed specifications as published in the IEEE 802.1Q standard;

   d. The forwarding/filtering rate shall be 14,880 packets per second (PPS) for 10 Mbps and 148,800 PPS for 100 Mbps and 1,488,000 PPS for 1000 Mbps;

   e. The switch shall have a minimum 8-kilobit MAC address table;

   f. The switch shall support, at a minimum, Version 2 of the Internet Group Management Protocol (IGMP);

   g. The switch shall include the electronics required for Simple Network Management Protocol (SNMP V2). The switch shall be accessed using the resident EIA-232 management port, a telecommunication network or the Trivial File Transfer Protocol (TFTP);

   h. The switch shall support remote monitoring (RMON) groups 1, 2, 3, 9;

   i. The switch shall support management via Telnet and Web;

   j. The switch shall support the TFTP, the Network Time Protocol (NTP), and the Simple Network Time Protocol (SNTP);

   k. The switch shall support Broadcast Rate Limiting;

   l. The switch shall include integrated AC power supply;

   m. The Ethernet switch shall be warranted for a 5 year period.

CONSTRUCTION REQUIREMENTS.

The contractor shall install the Ethernet switch in the traffic signal controller cabinet at the location shown on plans and according to the manufacturer's recommendations. The contractor shall be responsible for connecting all Ethernet compatible devices and making sure all are functioning properly. The inputs/outputs shall be to a traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector rack or 170 input file rack standards.

MEASUREMENT.

Ethernet Switch Managed will be measured per each, which includes all materials, tools, equipment, labor, and incidentals required to install each fully functioning Ethernet switch.

PAYMENT.

Payment for Ethernet Switch Managed will be made at the contract unit price per each, which will be full compensation for performing all work as described above.

Payment will be made under:

Item No.	Pay Item	Pay Unit
NS-736-00003	Ethernet Switch Managed	Each

Contract ID: 065-91-0016 **Project(s):** 065-91-0016, 855-14-0015

SECTION: 1 GENERAL ITEMS

Proposal Line Number	Item ID	Description / Unit Price (In Words, Ink or Typed)	Approximate Quantity	Unit of Measure
0104	804-17-00100	Dynamic Monitoring	9.000	EACH
		_____ Dollars		
		_____ Cents		
0105	805-01-00300	Class A Concrete (Box Culvert Headwalls)	7.630	CUYD
		_____ Dollars		
		_____ Cents		
0106	805-01-00500	Class A Concrete (Footings)	486.220	CUYD
		_____ Dollars		
		_____ Cents		
0107	805-01-00700	Class A Concrete (Bents)	90.670	CUYD
		_____ Dollars		
		_____ Cents		
0108	805-01-00900	Class A Concrete (Counterweights)	153.480	CUYD
		_____ Dollars		
		_____ Cents		
0109	805-04-00100	Class AA(M) Concrete	1,450.100	CUYD
		_____ Dollars		
		_____ Cents		
0110	805-12-32000	Reinforced Concrete Box Culverts (3' x 3') (Extension)	18.000	LNFT
		_____ Dollars		
		_____ Cents		
0111	806-01-00100	Deformed Reinforcing Steel	604,274.000	LB
		_____ Dollars		
		_____ Cents		

Contract ID: 065-91-0016 **Project(s):** 065-91-0016, 855-14-0015

SECTION: 1 GENERAL ITEMS

Proposal Line Number	Item ID	Description Unit Price (In Words, Ink or Typed)	Approximate Quantity	Unit of Measure
0112	807-08-00100	Structural Metalwork 567636 LBS		LUMP SUM
		_____ Dollars		
		_____ Cents		
0113	809-01-00100	Movable Bridge Machinery		LUMP SUM
		_____ Dollars		
		_____ Cents		
0114	809-02-00100	Traffic Barriers		LUMP SUM
		_____ Dollars		
		_____ Cents		
0115	809-03-00100	Operating House		LUMP SUM
		_____ Dollars		
		_____ Cents		
0116	810-01-00100	Concrete Railing (Standard Barrier)	467.070	LNFT
		_____ Dollars		
		_____ Cents		
0117	810-03-00100	Pipe Railing	1,069.950	LNFT
		_____ Dollars		
		_____ Cents		
0118	812-01-00200	Treated Timber (Coastal Treatment)	10.530	MFBM
		_____ Dollars		
		_____ Cents		
0119	813-01-00100	Concrete Approach Slabs	992.000	SQYD
		_____ Dollars		
		_____ Cents		

Contract ID: 065-91-0016 **Project(s):** 065-91-0016, 855-14-0015

SECTION: 1 GENERAL ITEMS

Proposal Line Number	Item ID	Description Unit Price (In Words, Ink or Typed)	Approximate Quantity	Unit of Measure
0120	NS-600-00220	Saw Cutting Portland Cement Concrete Pavement	106.000	LNFT
		_____ Dollars _____ Cents		
0121	NS-729-00001	Navigational Clearance Gauge (Mounted)	2.000	EACH
		_____ Dollars _____ Cents		
0122	NS-736-00020	Video Detector (MVP) Device	8.000	EACH
		_____ Dollars _____ Cents		
0123	NS-736-00040	Video Detection (MVP) System	2.000	EACH
		_____ Dollars _____ Cents		
0124	NS-800-00260	Hand Railing	173.360	LNFT
		_____ Dollars _____ Cents		
0125	NS-800-00420	Tower Ladders, Cages and Miscellaneous Support	1.000	LUMP
		_____ Dollars _____ Cents		
0126	NS-MSC-00120	Drainage Structure (Paved Gutter Drain)	4.000	EACH
		_____ Dollars _____ Cents		
0127	NS-736-00002	Wireless Ethernet Radio	2.000	EACH
		_____ Dollars _____ Cents		

Contract ID: 065-91-0016 **Project(s):** 065-91-0016, 855-14-0015

SECTION: 1 GENERAL ITEMS

Proposal Line Number	Item ID	Description Unit Price (In Words, Ink or Typed)	Approximate Quantity	Unit of Measure
0128	NS-736-00003	Ethernet Switch Managed	2.000	EACH
				Dollars
				Cents

Section: 1 **Total:** _____.___

Items Total: _____.___

Cost Plus Time		Road User Cost Per Unit	Unit Type	Number of Units Bid
01	Calendar Days A+B	5,000.00	Days	_____

Total Bid: _____.___